REMARKS

1. The Amendments and the Support Therefor

Five claims (14-18) have been canceled, fourteen new claims (21-34) have been added, and claim 1 has been amended to leave claims 1-13 and 19-34 in the application. A form PTO-2038 authorizing a charge for any newly-submitted claims in excess of the amount previously paid for should accompany this Response, as per 37 CFR §1.16(b)-(d), with the fee due being calculated as follows:

FEE CALCULATION

For	Already Paid	No. Extra	Rate (SMALL ENTITY)	Fee (SMALL ENTITY)
Total Claims	29 - 20 =	9	x $9 =	$81
Independent Claims	2 - 3 =	0	x $42 =	$0
			Total:	$81

No new matter has been added by the amendments or new claims. For your convenience, following is a summary cross-referencing certain amendments and the new claims to exemplary portions of the specification and/or drawings disclosing the recited structure. A more detailed explanation of these amendments and new claims is provided where it is thought to be helpful:

Claims 21 and 22: find support in Fig. 4.

Claim 23: finds support in Claim 2.

Claim 24: finds support in Claim 3.

Claim 25: finds support in Claim 4.

Claim 26: finds support in Claim 5.

Claim 27: finds support in Claim 6.

Claim 28: finds support in Claim 7.

Claim 29: finds support in Claim 8.

Claim 30: finds support in Claim 9.

Claim 31: finds support in Claim 10.

Claim 32: finds support in Claim 11.

Claim 33: finds support in Claim 12.

Claim 34: finds support in Claim 13.

Further comments regarding the new claims are set out below at Section 6 below.

2. **Section 5 of the Office Action: Rejection of Claims 1-13 under 35 USC §112(2)**

Claim 1 has been amended to address the §112(2) rejection (as understood). As noted in the last Response, claim 1 plainly recites a strip attached to a structure by fasteners (i.e., it requires a strip, a structure, and fasteners to be infringed), and the claim therefore meets the requirements of 35 USC §112(2), since an ordinary artisan can determine what is and is not within the claim when the claim is read in light of the specification. This is all that §112(2) requires; see *Miles Laboratories Inc. v. Shandon Inc.*, 27 USPQ2d 1123, 1126 (Fed. Cir. 1993).

3. **Sections 6-7 of the Office Action: Rejection of Claims 1-4, 7-11, and 13 under 35 USC §102 in view of U.S. Patent 5,648,138 to *Tingley***

Kindly reconsider these rejections. Note that claim 1 requires "nondirectional fibers distributed transversely across the strip," with a polymer matrix embedding these fibers. *Tingley*, in contrast, describes reinforcing panels for wood structures which have parallel (i.e., directional) embedded fibers within their matrices, and only *Tingley*'s "haired up" fibers (which are outside the matrix and "nonembedded") are nondirectional. Note the description of the *Tingley* FIG. 5A embodiment at column 5 line 11-column 6 line 19, particularly at column 5 lines 45-51. Similarly, the *Tingley* FIG. 5B embodiment, as described at column 6 lines 29-53, has the aramid second fibers 31 parallel and directional (like the first fiber 30), and the aramid second fibers 31 are then nondirectionally "haired up" at the surface, outside the matrix. The *Tingley* FIG. 5C embodiment (as described column 6 line 54 onward) does the same to a mat 35. Note that the purpose of "hairing up" the fibers (i.e., making them nondirectional) outside the *Tingley* panel is so that when adhesives are applied to the panel, they will better adhere to its surface (see, e.g., column 5 lines 45-51).

Keep Tingley

Thus, since *Tingley* does not disclose nondirectional fibers embedded within the panel – rather, *Tingley*'s fibers are only nondirectional outside the matrix of the panel – claim 1 (and thus its dependent claims) do not read on *Tingley*. Further, since the purpose of this arrangement is

to allow for better surface adhesion of adhesives, there is nothing that fairly suggests that *Tingley*'s fibers should be made nondirectional within the matrix.

4. **Sections 8-9 of the Office Action: Rejection of Claims 1, 5, 19, and 20 under 35 USC §102 in view of U.S. Patent 5,648,138 to *Tingley* in view of U.S. Patent 5,637,375 to *Hohman***

U.S. Patent 5,648,138 to *Tingley* is reviewed in the foregoing Section 3 of this Response. Turning to U.S. Patent 5,637,375 to *Hohman*, note that what *Hohman* does is braid fibers, or wrap fabric, about items to be reinforced, and then coats the braided/wrapped structure with resinous matrix to fix the fibers/fabric in place. See, e.g., col 1 line 65-col 2 line 12 of *Hohman*; also column 3 lines 10-31, describing "layers" of (continuous) fiber being coated by unset matrix (containing short fibers), and then curing it; also column 5 lines 18-36, describing braiding of continuous fibers about plates, and then coating the braided layers with the mixture of resin and chopped fiber. The continuous fibers are the load-bearing members, and the matrix simply holds them together, with the chopped short fibers being intended to extend between the continuous fiber layers to interlock them. See, e.g., column 5 lines 5-17 of *Hohman*. For interlocking, the braided/coated structure is subjected to a pressure gradient so that the unset matrix of resin and short chopped fiber flows toward the low-pressure zone, causing the short chopped fibers to orient across the continuous-fiber layers. See column 9 line 43-column 10 line 9 of *Hohman* (describing how the short chopped fibers 19 of FIG. 1 are oriented as shown in FIG. 2 after the pressure difference P2-P1 is applied as shown in FIG. 2). This procedure is stated to fully impregnate/wet the previously-applied continuous fiber layers with the resin and short chopped fiber matrix to hold the continuous fiber layers together (see also column 5 line 5-8 of *Hohman*).

Tingley, on the other hand, doesn't apply separate continuous fiber layers, and then impregnate/wet them with matrix afterward. Rather, each *Tingley* fiber is wet at the time it is fed/introduced into the *Tingley* panel being molded. See *Tingley* at column 5 lines 14-17, 32-38; column 10 line 35 onward (particularly col. 11 lines 24-28).

It is therefore submitted that the inventions of independent claims 1 and 19 (and their dependent claims 5 and 20) are not obvious because one of ordinary skill would not in fact be fairly motivated to incorporate *Hohman*'s short fibers into *Tingley*: since *Tingley*'s fibers are already fully wetted when the *Tingley* panel is formed, they experience full adhesion to each other, and therefore the purpose of adding the short fibers as taught by *Hohman* – to adhere the spaced layers of continuous fiber – is inapposite. In other words, one of ordinary skill would not fairly ascertain any benefit to adding *Hohman*'s short fibers to adhere the fiber layers of *Tingley* since *Tingley*'s layers will *already* be adhered during formation of the *Tingley* panel. Since *Tingley* already achieves *Hohman*'s purposes, there is no objective motivation for one of ordinary skill to include the short fibers.

Further, note that even if one did see any benefit to modifying *Tingley* as per *Hohman*, the resulting invention would not result in the invention claimed. *Hohman*'s short fibers may be nondirectional when the wet matrix is initially applied, but *Hohman* then suggests that the short fibers should then be oriented (i.e., be made directional) before the structure is cured, as discussed above. Thus, a modification of *Tingley* as per the teachings of *Hohman* would not result in a structure having the claimed nondirectional fibers: one who followed *Hohman* and added the short chopped fibers would then make them directional, as taught by *Hohman*, to try to achieve the advantages taught by *Hohman*.

Finally, it is also submitted that a modified version of *Tingley* as per *Hohman* also does not result in the claimed invention because there is no suggestion of using the recited fasteners in conjunction with the recited strip structure. *Tingley* affixes panels by adhesives (column 5 lines 39-55); *Hohman* applies its reinforcing fibers by wrapping, wetting & curing. Further, note that of the references cited, only U.S. Patent 5,640,825 to *Ehsani* (discussed in the next portion of this Response, at Section 5) describes the use of fasteners – and here the fasteners are used to bolt down a metal plate which is used to press the composite strip against the structure being reinforced (and further, the plate is used in conjunction with adhesives fixing the composite strip to the structure). In other words, the fasteners are used to indirectly fasten the composite strip to the structure via the metal plate. The claimed use of fasteners is significant if one is to attain the

"rapid reinforcement" advantages noted in the Background and Summary sections of the present application. As noted throughout the present application, the specifically claimed strip structure attains a composite reinforcing strip which may be used to rapidly reinforce structures by use of fasteners, without the strip having a significant tendency to fail owing to shearing at the bolt holes through which the fasteners are fit. It is submitted that such an arrangement is neither shown in the references of record, nor is it suggested, since the art as a whole tends to assume that bolted reinforcing strips will be ineffective, largely because the fasteners themselves will so weaken the strips that the strips will fail.

Thus, in any future examination, please consider that when the invention is considered *as a whole*, as mandated by §103, the focus of the invention is neither upon a reinforcing strip *alone*, nor upon the reinforcement of a structure by a bolted reinforcing strip *alone*. Rather, the invention is directed to the specifically-claimed strip in conjunction with the fasteners, whereby the claimed strip finally allows the effective use of fasteners for rapid reinforcement. It is submitted that when all references are fairly considered for all that they teach, the prior art simply does not lead an ordinary artisan to the claimed invention: even if some yet-to-be-discovered references did suggest construction of the claimed strip, there is nothing that fairly suggests that such a strip structure would finally allow effective use of fasteners. Kindly keep these considerations in mind as the claims are reconsidered, and do not hesitate to contact the undersigned attorney if you have questions or otherwise wish to discuss the matter.

5. Section 10 of the Office Action: Rejection of Claims 1, 6, and 12 under 35 USC §103(a) in view of U.S. Patent 5,648,138 to *Tingley* and U.S. Patent 5,640,825 to *Ehsani*

The structures of the reinforcing panels of U.S. Patent 5,648,138 to *Tingley* are discussed in the foregoing Section 3 of this Response. Regarding U.S. Patent 5,640,825 to *Ehsani*, this describes two primary embodiments of an invention:

(1) The use of a strap 12 of "composite fabric" as a reinforcement member, wherein the strap is epoxied to the underlying structure (FIG. 1 and column 3 lines 28-43), and/or affixed

to the underlying structure by (steel) plates which are then bolted to the underlying structure to press the strap 12 against the structure (FIG. 2 and column 3 lines 45-54, and/or FIG. 3 and column 3 lines 55-63). The structure of the fabric is described at column 2 lines 38-47, and the fibers are explicitly noted as being oriented (column 2 lines 44-47, column 5 lines 5-8). See also column 4 line 36-column 5 line 10.

(2) The use of a fast-curing liquid mixture as a reinforcing agent, wherein the mixture is a resin bearing non-continuous fibers (FIGS. 4-5 and column 3 line 64-column 4 line 25; also see column 2 lines 58-65). Since the mixture is sprayed or troweled (column 2 lines 61-63, column 4 lines 4-7), the fibers are necessarily nondirectional (unless some unusual and unknown measures were taken to orient them when the mixture is applied).

Regarding independent claim 1, the Examiner states that the *Ehsani* reference "discloses that the composite can be in individual strands or multiple strands that are woven together to form a substantially flat tape wherein the fibers are oriented in selected ones of longitudinal, transverse, and of combinations thereof as per instant claim 1 (see column 2, lines 38-47)." In particular, what *Ehsani* states at column 2 lines 38-47 is:

> More particularly, the composite material of the strap is a nonmetallic fiber composite material. The composite material can include glass, carbon, graphite, and synthetic high strength materials. The composite material can be provided in individual strands of material or in multiple strands being woven together to form a substantially flat tape in which the fibers are oriented in ***selected ones of longitudinal, transverse and angular directions, and of combinations thereof***, relative to a length of the tape to form a ***desired weave pattern***.

(Emphasis added.) This plainly does not suggest that *Tingley* should be modified to attain the specifically claimed strip structure (i.e., embedded lengthwise continuous parallel fibers *and* embedded *nondirectional* fibers). All it suggests is that *directional* fibers can be oriented in selected directions "as desired." Therefore, *Ehsani* does not provide any motivation to modify *Tingley* to incorporate the recited nondirectional fibers.

Further, consider that the cited passage of *Ehsani et al.* provides no more than an "obvious to try" rationale, and this passage cannot support a *prima facie* obviousness rejection as per MPEP 2145. An "obvious to try" situation arises where the prior art states that a number of possibilities

are available (here, that a number of directional fibers in a number of directions may be used), but the prior art does not provide any objective suggestion to an ordinary artisan to choose the *particular* solution implemented by the Applicant:

> [3] The admonition that "obvious to try" is not the standard under §103 has been directed mainly at two kinds of error. In some cases, what would have been "obvious to try" would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. In others, what was "obvious to try" was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it.

In re O'Farrell, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988) (citations omitted). Many cases discussing the impropriety of the obvious to try rationale have explained that the prior art must, when considered objectively, provide motivation to construct the *specific* claimed invention; a general and "unfocused" motivation will not suffice.[1] Here, while *Ehsani* states that directional fibers may be included and oriented "as desired," there is nothing that specifically suggests that nondirectional fibers should be incorporated into *Tingley*, or that they would yield any benefit. If the Examiner believes otherwise, kindly identify with particularity the location and content of the alleged disclosure or suggestion so that the Applicant may better respond.[2]

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[1] For cases finding lack of a prima facie case of obviousness on this basis, see, e.g., *In re Deuel*, 34 USPQ2d 1210, 1215 (Fed. Cir. 1995), "While the *general* idea of the claimed molecules.... may have been obvious from Bohlen's teachings.... the *precise* cDNA molecules of claims 5 and 7 would not have been obvious....." *(emphasis added)*; *Ex parte Obukowicz*, 27 USPQ2d 1063, 1065 (Bd. Pat. App. & Int. 1992), "The Dean statement is of the type that gives only *general* guidance and is not at all specific as to the *particular* form of the claimed invention and how to achieve it" *(emphasis added)*.

[2] "[W]hen the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such a teaching or suggestion appears in the reference," *In re Rijckaert*, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (citing to *In re Yates*, 211 USPQ 1149, 1151 (CCPA 1981)); "When relying on numerous references or a modification of prior art, it is incumbent upon the examiner to identify some suggestion to combine references or make the modification," *In re Mayne*, 41 USPQ2d 1451, 1454 (Fed. Cir. 1997) (citing to *In re Jones*, 21 USPQ2d 1941, 1943 (Fed. Cir. 1992) and *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 227 USPQ 657, 664 (Fed. Cir. 1985)).

Regarding claim 6 being a product-by-process claim, these comments are not understood since neither claim 6 nor its parent claim 1 are method claims, and claim 6 merely recites further characteristics of claim 1. In any event, claim 6 is submitted to be allowable for at least the same reasons as its parent claim 1.

Regarding claim 12, *Ehsani* describes the possible use of a number of different fibers at column 4 line 65-column 5 line 2, but as per the foregoing discussion of the impropriety of an obvious-to-try rationale, note that there is nothing specifically teaching the use of the claimed arrangement. In any event, claim 12 is submitted to be allowable for at least the same reasons as its parent claim 1.

6. New Claims 21-34

New claims 21 and 22 are submitted to be allowable for at least the same reasons as their parent claims 1 and 19, and additionally because no references of record – including *Ehsani* – describe or suggest a strip which can be (or is) fastened to a structure by the use of fasteners inserted along its length, rather than at its ends. Again, in *Ehsani*, fasteners are used near the *ends* of a strip (which is affixed to a structure by adhesives) to bolt down a metal plate, with the metal plate pressing the ends of the strip against the structure. As previously noted, the fasteners in *Ehsani* are used to hold the plates in place (with the plates then holding the strip), and the art does not suggest that strips can be affixed to structures with fasteners without shattering or otherwise overly weakening the strips. There is also no suggestion that fasteners can be affixed along the entire length of the strip (thereby allowing stresses to be distributed along the entire length of the strip and to multiple anchors), rather than solely at its ends.

The remaining new claims 23-34 are submitted to be allowable for at least the same reasons as their parent claim 19.

7. In Closing

If any questions regarding the application arise, please contact the undersigned attorney. Telephone calls related to this application are welcomed and encouraged. The Commissioner is authorized to charge any fees or credit any overpayments relating to this application to deposit account number 18-2055.

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ATTACHMENTS:
- PTO-2038 ($81)